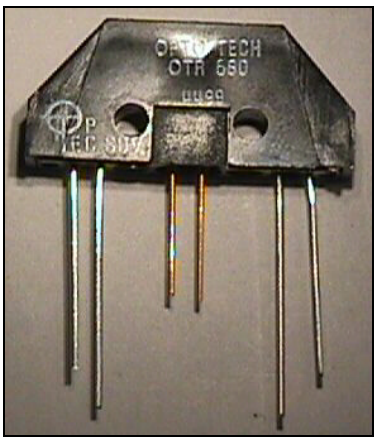
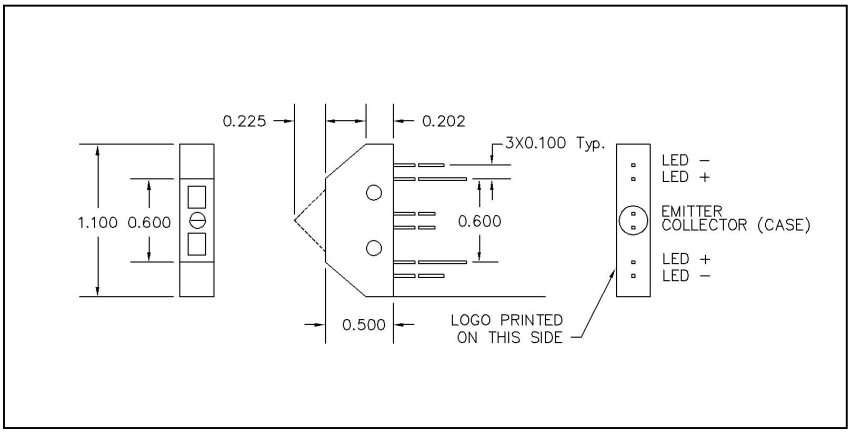
DUAL EMITTER BAR CODE HEAD OTR 680/690





FEATURES:

- **Bar code reader / fine line sensor**
- **0.007" - 0.013" resolution**
- **Compact size**
- **Glass lens**

PRODUCT DESCRIPTION

Opto Technology's OTR 680/690 series combines two emitters, a lens and photodetector into one low cost plastic housing. The rectangular aperture inside the package offers high resolution with good depth of field. The OTR 680 has two 940nm infrared emitting diodes with PIN Diode or Phototransistor and the OTR 690 series has two 660nm visible light emitting diodes with either sensor option. Custom apertures for these devices are available upon request.

ABSOLUTE MAXIMUM RATINGS

General

Storage Temperature Range ---------- - 55°C to +100°C
Operating Temperature Range ---------- - 40°C to +85°C
Lead Soldering Temperature (1/16" from case
for 5 seconds soldering iron, 10 seconds flow soldering) ---------- 260°C

Infrared Emitter (940 nm)

Reverse Voltage ---------- 5 V
Continuous Forward Current ----------50 mA
Power Dissipation ---------- 100 mW

Visible Emitter (660 nm)

Reverse Voltage ---------- 5 V
Continuous Forward Current ---------- 50mA
Power Dissipation ---------- 100 mW

Phototransistor

Collector-Emitter Voltage ---------- 35 V
Emitter-Collector Voltage ----------6 V
Power Dissipation (Derate 2.4 mW/°C above 25°C) ---------- 250 mW

PIN Diode

Reverse Voltage ---------- 35V
Dark Current V_r=20V ----------150nA
Power Dissipation (Derate 1.5 mW/°C above 25°C) ---------- 150 mW

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REV. A (11/01)

Infrared Emitter

Parameter	Symbol	Min	Typ	Max	Units
Forward Voltage (I_F = 50 mA)	V_F		1.3	1.45	V
Reverse Current (V_R = 5 V)	I_R			100	µA
Peak Wavelength (I_F = 20 mA)	λ_P		940		nm
Radiant Intensity (I_F = 20 mA)	I	1.3	2.5		mW/sr
Spectral Bandwidth at 50% (I_F = 20 mA)	$\Delta\lambda$		50		nm
Half Intensity Beam Angle	θ		10		Degrees

Visible Emitter

Parameter	Symbol	Min	Typ	Max	Units
Forward Voltage (I_F = 20 mA)	V_F		1.8	2.4	V
Reverse Current (V_R = 5 V)	I_R			100	µA
Peak Wavelength (I_F = 20 mA)	λ_P		660		nm
Luminous Intensity (I_F = 20 mA)	I_V	250	500		mcd
Spectral Bandwidth at 50% (I_F = 20 mA)	$\Delta\lambda$		20		nm
Half Intensity Beam Angle	θ		10		Degrees

Phototransistor

Parameter	Symbol	Min	Typ	Max	Units
Light Current (Ee=1.0mW/cm^2, V_{CE}=5V)	$I_{CE(ON)}$	1	2.8		mA
Dark Current (Ee=0, V_{CE}=10V)	I_{CE0}			60	nA
Saturation Voltage (I_C=1.0mA,)	$V_{CE(SAT)}$			0.5	V
Rise Time (V_{CC}=5V, R_L=100Ω)	T_r		6		µs
Fall Time (V_{CC}=5V, R_L=100Ω)	T_f		8		µs

Pin Diode

Parameter	Symbol	Min	Typ	Max	Units
Light Current (Ee=1.0mW/cm^2)	I_L	8	20		µA
Dark Current (Ee=0, V_r=20V)	I_D			100	nA
Total Capacitance (V=0, f= 1 MHZ)	C_t		40		pF
Rise Time (R_L=1kΩ)	T_r		1		µs
Fall Time (, R_L=1kΩ)	T_f		1		µs

Coupled Characteristics

Parameter	Symbol	Min	Typ	Max	Units
Light Current (I_F = 20 mA, V_{CE} = 5V, d = 0.225 in, OTR680-X2X)[1]	$I_{CE(ON)}$	5.0			µA
Dark Current (I_F = 0 mA, V_{CE} = 5V, OTR680-X2X)[2]	I_{CE0}			40	nA
Light Current (I_F = 20 mA, V_{CC} = 5V, d = 0.225 in, OTR681-X2X)[1]	$I_{CE(ON)}$	0.10			µA
Dark Current (I_F = 0 mA, V_{CC} = 5V, OTR681-X2X)[2]	I_{CE0}			5	nA
Light Current (I_F = 20 mA, V_{CE} = 5V, d = 0.225 in, OTR690-X2X)[1]	$I_{CE(ON)}$	5.0			µA
Dark Current (I_F = 0 mA, V_{CE} = 5V, OTR690-X2X)[2]	I_{CE0}			40	nA
Light Current (I_F = 20 mA, V_{CC} = 5V, d = 0.225 in, OTR691-X2X)[1]	$I_{CE(ON)}$	0.02			µA
Dark Current (I_F = 0 mA, V_{CC} = 5V, OTR691-X2X)[2]	I_{CE0}			5	nA

[1] Reflecting surface is Eastman Kodak neutral white test card having a 90% diffused reflectance.
[2] No reflective surface

Reflective Surface

Parameter	Symbol	Min	Typ	Max	Units
Element Contrast		(80%)			%
Diffused Reflectance		(90%)			%
Element Width (0.002x0.045 Aperture)	W_N	0.007			in
Narrow Element to Narrow Space Ratio			0.95		

Product Specifications (T_A = 25°C unless noted)

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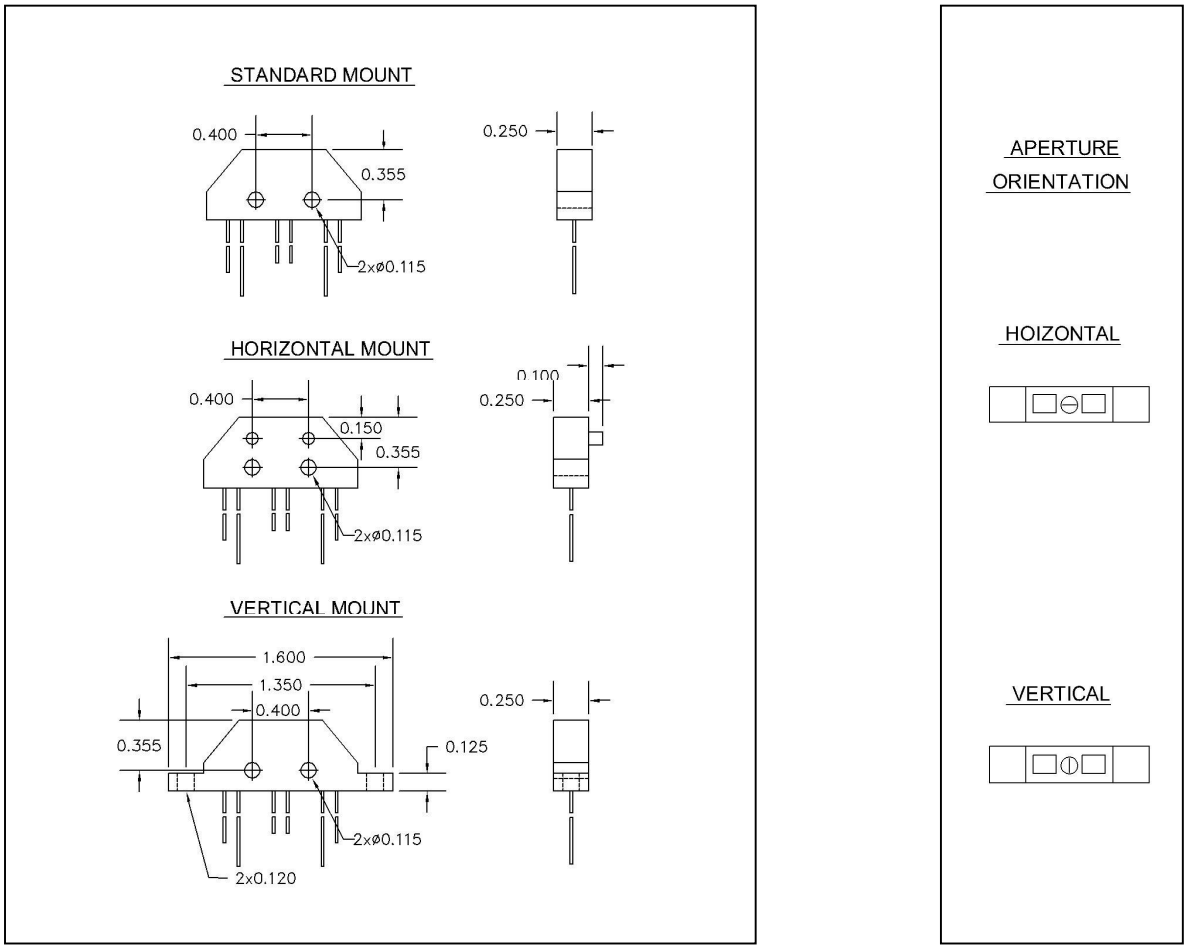
ORDERING INFORMATION



OTR6XX - XXX

Emitter:
(8) 940 nm Infrared
(9) 660 nm Visible Red

Sensor:
(0) Phototransistor
(1) Photodiode

Aperture Orientation:
(H) Horizontal
(V) Vertical

Aperture Size:
(0) 0.006" x 0.110"
(1) 0.003" x 0.045"
(2) 0.002" x 0.045"
(C) Custom

Mounting Configuration:
(H) Horizontal
(V) Vertical
(S) Standard

The vertical model has mounting tabs from both sides.

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